

CLAIM SUMMARY DOCUMENT

Sub H 1
C
1. (Currently Amended) A resin composition to be used in a multi-layer laminate for storing liquid foods, comprising a hydrophilic reducing organic compound and a hydrophilic and water insoluble thermoplastic resin, wherein the hydrophilic reducing organic compound is included in the hydrophilic and water insoluble thermoplastic resin and the hydrophilic and water insoluble resin provides an oxygen gas barrier for the hydrophilic reducing organic compound and wherein the hydrophilic reducing organic compound and the water insoluble thermoplastic resin are dispersed in a hydrophobic thermoplastic resin wherein the resin composition is prepared by:

kneading the hydrophilic reducing organic compound and the hydrophilic and water insoluble thermoplastic resin compound at a temperature not higher than the melting temperature or decomposition point of the hydrophilic reducing organic compound and equal to or higher than the melting temperature of the hydrophilic and water insoluble thermoplastic resin to form a kneaded compound; and

kneading the kneaded compound comprised of the hydrophilic reducing organic compound and the hydrophilic and water insoluble thermoplastic resin compound with the hydrophobic thermoplastic resin at a temperature lower than the melting temperature of the water insoluble thermoplastic resin compound and equal to or higher than the melting temperature of the hydrophobic thermoplastic resin, so that the kneaded compound is dispersed in the hydrophobic thermoplastic resin.

2. (Previously amended) The resin composition of Claim 1, in which the hydrophilic reducing organic compound is present in the range of 0.05~10% by weight, the hydrophilic and water insoluble thermoplastic resin is present in the range of 3~40% by weight, and the hydrophobic thermoplastic resin is present in the range of 50~96% by weight.

3. (Currently Amended) A resin composition to be used in a multi-layer laminate for storing liquid foods, comprising a hydrophilic reducing organic compound, a porous inorganic compound, and a hydrophilic and water insoluble thermoplastic resin, wherein the hydrophilic reducing organic compound is included in the hydrophilic and water insoluble thermoplastic resin and the hydrophilic and water insoluble thermoplastic resin provides an oxygen gas barrier for the hydrophilic reducing organic compound and wherein the hydrophilic reducing organic compound, the porous inorganic compound and the water insoluble thermoplastic resin are dispersed in a hydrophobic thermoplastic resin wherein the resin composition is prepared by:

kneading the hydrophilic reducing organic compound, the porous inorganic compound and the hydrophilic and water insoluble thermoplastic resin compound at a temperature not higher than the melting temperature or decomposition point of the hydrophilic reducing organic compound and equal to or higher than the melting temperature of the hydrophilic and water insoluble thermoplastic resin to form a kneaded compound; and

H1
G/L
Canted

kneading the kneaded compound comprised of the hydrophilic reducing organic compound, the porous inorganic compound and the hydrophilic and water insoluble thermoplastic resin compound with the hydrophobic thermoplastic resin at a temperature lower than the melting temperature of the water insoluble thermoplastic resin compound and equal to or higher than the melting temperature of the hydrophobic thermoplastic resin, so that the kneaded compound is dispersed in the hydrophobic thermoplastic resin.

4. (Previously amended) The resin composition of Claim 3, in which the hydrophilic reducing organic compound is present in the range of 0.05~10% by weight, the porous inorganic compound is present in the range of 0.05~10% by weight, the hydrophilic and water insoluble thermoplastic resin is present in the range of 3~40% by weight, and the hydrophobic thermoplastic resin is present in the range of 40~96% by weight.

5. (Previously amended) The resin composition of Claim 3, in which the porous inorganic compound comprises synthetic zeolite.

6. (Previously amended) The resin composition of Claim 1, in which the hydrophilic reducing organic compound is a compound selected from the group consisting of ascorbic acids, polyphenols and catechins.

sub
H1
G

7. (Previously amended) The resin composition of Claim 1, in which the hydrophilic and water insoluble thermoplastic resin is ethylene-vinyl alcohol copolymer, polyvinyl alcohol having a saponification degree of 95% or higher, or polyamide resin.

8. (Previously amended) The resin composition of Claim 1, in which the hydrophobic thermoplastic resin comprises polyolefin resin.

9. (Previously amended) A laminate for packaging liquid foods comprising an innermost layer made of the resin composition claimed in Claim 1.

10. (Previously amended) A laminate for packaging liquid foods comprising an innermost layer made of a hydrophilic and water insoluble thermoplastic resin and a layer adjacent to the innermost layer made of the resin composition claimed in Claim 1.

11. (Previously amended) The laminate for packaging liquid foods of Claim 10, in which the hydrophilic and water insoluble thermoplastic resin of the innermost layer comprises ethylene-vinyl alcohol copolymer or polyvinyl alcohol having a saponification degree of 95% or higher.

12. (Previously amended) A laminate for packaging liquid foods comprised of an innermost layer made of resin having a water vapor transmission rate of not less than 5

Sub
H1
C1
g/m²·24 hours at 40°C and 90% RH and a layer adjacent to the innermost layer made of the resin composition claimed in Claim 1.

13. (Original) The laminate for packaging liquid foods of Claim 12, in which the resin layer having the water vapor transmission rate is comprised of polyethylene based resin or polypropylene based resin having a thickness of 30 μ m or less.

14.-19. (Canceled)

20. (Currently Amended) A method of producing a resin composition to be used in a multi-layer laminate for packaging liquid foods, comprising the steps of kneading a hydrophilic reducing organic compound and a hydrophilic and water insoluble thermoplastic resin compound, at a temperature not higher than the melting point or decomposition point of the hydrophilic reducing organic compound and equal to or higher than the melting temperature of the hydrophilic and water insoluble thermoplastic resin, to make a kneaded compound, wherein the hydrophilic reducing organic compound is included in the hydrophilic and water insoluble thermoplastic resin and the hydrophilic and water insoluble resin provides an oxygen gas barrier for the hydrophilic reducing organic compound and kneading the kneaded compound comprised of the hydrophilic reducing organic compound and the hydrophilic and water insoluble thermoplastic resin compound with a hydrophobic thermoplastic resin at a temperature lower than the melting temperature of the water insoluble thermoplastic resin compound and equal to or higher than the

~~melting temperature of the hydrophobic thermoplastic resin, so that the kneaded compound is dispersed in the hydrophobic thermoplastic resin.~~

21. (Currently Amended) A method of producing a resin composition to be used in a multi-layer laminate for packaging liquid foods, comprising the steps of kneading a hydrophilic reducing organic compound, a porous inorganic compound, and a hydrophilic and water insoluble thermoplastic resin compound at a temperature not higher than the melting temperature or decomposition point of the hydrophilic reducing organic compound and equal to or higher than the melting temperature of the hydrophilic and water insoluble thermoplastic resin, wherein the hydrophilic reducing organic compound is included in the hydrophilic and water insoluble thermoplastic resin and the hydrophilic and water insoluble thermoplastic resin provides an oxygen gas barrier for the hydrophilic reducing organic compound to make a kneaded compound, and kneading the kneaded compound comprised of the hydrophilic reducing organic compound, the porous inorganic compound and the hydrophilic and water insoluble thermoplastic resin compound with the hydrophobic thermoplastic resin ~~at a temperature lower than the melting temperature of the water insoluble thermoplastic resin compound and equal to or higher than the melting temperature of the hydrophobic thermoplastic resin,~~ so that the kneaded compound is dispersed in the hydrophobic thermoplastic resin.

22. (Previously added) The resin composition of claim 1 wherein the hydrophilic reducing organic compound is included in the hydrophilic and water insoluble thermoplastic resin.

23. (Canceled)

24. (Currently Amended) A pellet to be used in a multi-layer laminate for storing liquid foods, comprising a hydrophilic reducing organic compound and a hydrophilic and water insoluble thermoplastic resin, wherein the hydrophilic reducing organic compound is included in the hydrophilic and water insoluble thermoplastic resin and the hydrophilic and water insoluble thermoplastic resin provides an oxygen gas barrier for the hydrophilic reducing organic compound and wherein the pellet is prepared by:

kneading the hydrophilic reducing organic compound and the hydrophilic and water insoluble thermoplastic resin compound at a temperature not higher than the melting temperature or decomposition point of the hydrophilic reducing organic compound and equal to or higher than the melting temperature of the hydrophilic and water insoluble thermoplastic resin to form a kneaded compound;

kneading the kneaded compound comprised of the hydrophilic reducing organic compound and the hydrophilic and water insoluble thermoplastic resin compound with the hydrophobic thermoplastic resin at a temperature lower than the melting temperature of the water insoluble thermoplastic resin compound and equal to or higher than the melting

HI
CG
~~temperature of the hydrophobic thermoplastic resin, so that the kneaded compound is dispersed in the hydrophobic thermoplastic resin; and~~

~~forming a pellet from the hydrophobic thermoplastic resin containing the dispersed kneaded compound.~~

25. (Previously added) The pellet of claim 24, in which the hydrophilic reducing organic compound is present in the range of 0.05 ~ 10% by weight, the hydrophilic and water insoluble thermoplastic resin is present in the range of 3 ~ 40% by weight, and the hydrophobic thermoplastic resin is present in the range of 50 ~ 96% by weight.

26. (Previously added) The pellet of claim 24, in which the hydrophilic reducing organic compound is a compound selected from the group consisting of ascorbic acids, polyphenols and catechins.

27. (Previously added) The pellet of claim 24, in which the hydrophilic and water insoluble thermoplastic resin is ethylene-vinyl alcohol copolymer, polyvinyl alcohol having a saponification degree of 95% or higher, or polyamide resin.

28. (Previously added) The pellet of claim 24, in which the hydrophobic thermoplastic resin comprises polyolefin resin.

29. (Currently Amended) A pellet to be used in a multi-layer laminate for storing liquid foods, comprising a hydrophilic reducing organic compound, a porous inorganic compound and a hydrophilic and water insoluble thermoplastic resin, wherein the hydrophilic reducing organic compound is included in the hydrophilic and water insoluble thermoplastic resin and the hydrophilic and water insoluble thermoplastic resin provides an oxygen gas barrier for the hydrophilic reducing organic compound and wherein the pellet is prepared by:

kneading the hydrophilic reducing organic compound, the porous inorganic compound and the hydrophilic and water insoluble thermoplastic resin compound at a temperature not higher than the melting temperature or decomposition point of the hydrophilic reducing organic compound and equal to or higher than the melting temperature of the hydrophilic and water insoluble thermoplastic resin to form a kneaded compound;

kneading the kneaded compound comprised of the hydrophilic reducing organic compound, the porous inorganic compound and the hydrophilic and water insoluble thermoplastic resin compound with the hydrophobic thermoplastic resin ~~at a temperature lower than the melting temperature of the water insoluble thermoplastic resin compound and equal to or higher than the melting temperature of the hydrophobic thermoplastic resin,~~ so that the kneaded compound is dispersed in the hydrophobic thermoplastic resin; and forming a pellet from the hydrophobic thermoplastic resin containing the dispersed kneaded compound.

CG
can be

30. (Previously added) The pellet of claim 29, in which the hydrophilic reducing organic compound is present in the range of 0.05 ~ 10% by weight, the porous inorganic compound is present in the range of 0.05 ~ 10% by weight, the hydrophilic and water insoluble thermoplastic resin is present in the range of 3 ~ 40% by weight, and the hydrophobic thermoplastic resin is present in the range of 40 ~ 96% by weight.

31. (Previously added) The pellet of claim 29, in which the porous inorganic compound comprises synthetic zeolite.